

REMARKS

Reconsideration of the Application in view of the above amendment and the following remarks is respectfully requested.

The Examiner objects to Claim 26 because it is dependant upon Claim 18 instead of Claim 23 as the Examiner believes is correct. Claim 26 has been amended in this respect.

The Examiner rejects Claims 2, 3, 5, 6, 18, 20 and 23-27 under U.S.C. 103(a) as being unpatentable over Hoen in view of Wingo and Huibers et al. The Examiner states that Hoen discloses an optical, path-to-sight link, but does not seem to specifically disclose a transmitter with a light source and micromirrors, a receiver with a photodetector, and a control loop coupling control of the micromirror and receiver via a circuit. The Examiner states that Wingo teaches a transmitter with a light source and micromirrors and receiver with a photodetector. The Examiner states that Huibers et al. teaches a control loop coupling control of the mircromirror and receiver by a circuit. The Examiner concludes that would have been obvious to one having ordinary skill in the art at the time the invention was made to have the transmitter and receiver of Wingo and control loop of Huibers et al. with the devices of Hoen since one would be motivated to use it to have advantages in transmission over electrical transmission as shown by Wingo and since one would be motivated to make fine adjustments to the mirror so as to steer the beam in a proper direction as shown by Huibers et al.

We can not agree. As stated in the previous response, Hoen described a system in which an optical signal coming in on an optical fiber is deflected by a pair of optical mirrors and switched from one fiber to another. The switching, from a first input fiber to a second output fiber always follows the same path, and switch paths can easily be stored in the controller for the optical switch. Thus, there is no reason to have a system which determines that the light has impinged on a photodetector, and none is provided. In addition, in the embodiment showing the optical switching apparatus, two arrays of mirrors are utilized in contrast to a signal mirror required by the present invention.

The Examiner's citation of Wingo is confusing to Applicants because Wingo is totally unrelated to the present invention. Wingo is related to an optical cross connect device which switching light signals from one optical fiber to another. Although the background of the invention portion of Wingo describes the use of a transmitter and receiver, it is described in connection with transmissions along an optical fiber and not with respect to transmissions in the ether, as required by definition of "path-to-sight" in the present application at page 3, lines 15-18. The "transmitter" described by the Examiner is actually a device for providing an optical signal to switch the signals from one fiber to another in which a light source is turned ON or OFF by using a mirror to control light from a single source. This technique does not require, in any shape or form, the alignment of a light beam with a receiver since the only purpose disclosed in Wingo is for the transmitter to provide or not provide a light source onto a fiber for switching the signals traveling along the fiber.

The portion of Huibers et al. referred to by the Examiner concerns the embodiment shown in Fig. 17. Again, the Examiner has cited a reference involved in the switching of signals along an optical fiber. It is unclear where the Examiner is drawing the line between the transmitter and the receiver in Fig. 17 of Huibers et al. However, it is clear that the light source 606, the first reflector 602 and the second reflector 604 should form part of the transmitter. Clearly the signal is received along optical fiber 606 and the goal is to switch that to optical fiber 614. Therefore, optical fiber 614 must be the receiver and the remaining part of the apparatus must be the transmitter. A portion of the signal that is deflected to the receiver 614 is deflected by 616 onto a photodetector, which is then used to steer the mirror 604. Thus, the control loop is from one part of the transmitter back to control the reflecting mirrors in the transmitter. There is no control loop from the receiver to the transmitter as required by the claims. Thus, Huibers et al. teaches away from the present invention by having a feedback from the transmitted beam to control the transmitter beam, which will not work in the present invention. The reason it will not work in the present invention, is because the present invention is not at a fixed location as in Huibers et al. That is, in Huibers et al., the entire apparatus is within a single box at the same location. In the present invention, the transmitter and receiver are at separate locations, for example, the transmitter may be in one building and the receiver in another. Therefore, since the location of the receiver is unknown, it is impossible for a feedback signal from the transmitter to know that the beam is correctly aligned on the receiver. In Huibers et al., the receiver and transmitter are within the same box, and the location of the receiver is known, so that it is possible to steer the beam to an appropriate receiver by measuring the location of the beam at the transmitter end.

The Examiner rejects Claims 19, 22, and 28 under 35 U.S.C. 103(a) as being unpatentable over Hoen in view of Wingo and Huibers et al. as applied to the claims above and further in view of Abeles et al. The Examiner rejects Claims 21 and 29 under 35 U.S.C. 103(a) as being unpatentable over Hoen in view of Wingo and Huibers et al. as applied to claims above and further in view of Duguay. These claims are dependent directly or indirectly from Claims 18 and 23, discussed above, and are therefore patentable for the same reasons.

An Information Disclosure Statement is enclosed herewith with respect to U.S. Patent Application 09/614,351 now allowed, a copy of which is enclosed with the Information Disclosure Statement.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Marked-up version to show changes.**"

Accordingly, Applicants believe that the application as amended, is in condition for allowance, and such action is respectfully requested.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read 'William B. Kempler', written over a horizontal line.

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Marked-up claims to show changes:

— 18. ~~(New)~~ (Amended) An optical path-to-sight link comprising:

a transmitter located at a first location comprising a source generating a collimated light beam, said transmitter being pointed in a general direction of a receiver located at a second location remote from said first location;

a moveable micromirror at said first location and in a path of said collimated light beam for reflecting said collimated light beam to impinge on a photodetector in said receiver;

a controller for controlling orientation of said micromirror so that said collimated light beam is reflected onto said photodetector; and

a control loop coupled between said controller and said receiver for providing a control signal to said controller for controlling said micromirror orientation, said control loop being independent of said optical link.

23. ~~(New)~~ (Amended) In an optical path-to-path sight link, an optical transmitter comprising:

a source generating a collimated light beam within said transmitter, said collimated light beam having a path directed outside of said transmitter;

a moveable micromirror coupled in said path between said source and an exit point for said collimated light beam; and

a controller for controlling orientation of said micromirror so that in use in an optical link said collimated light beam is reflected by said micromirror onto a photodetector of a receiver, ~~and said controller is being responsive to an external signal generated by said receiver and transmitted along a control link that is separate from said optical link and~~ indicative of said collimated light beam impinging on said photodetector.

26. ~~(New)~~ (Amended) The transmitter in accordance with Claim ~~48~~ 23 wherein said micromirror is fabricated from silicon.